ME 3023 Measurements in Mechanical Systems

Formal Report Instructions

The length of the report, including all sections except the Appendix, is not to exceed 20 double-spaced, typed pages.

Contents of a Report

Title Page
The title page serves as the cover for the report. It contains identification information; report title, author(s), date, the course number, and the name of the person to whom the report will be submitted. A page number is not *shown* but its actual number is lower case Roman numeral i.

Abstract
The abstract is the most important part of the paper; it serves as a synopsis of the report. The abstract of a technical report should clearly state the purpose of the work reported, should tell what was done in the experiment, and should also state the important conclusions/results of the work. One or two well-constructed, concise paragraphs are usually sufficient. Do not include mathematical formulations, graphs, etc. A page number is not *shown* but its actual number is lower case Roman numeral ii.

Table of Contents
Sections of the report are numbered so that the first page of "Introduction and Literature Review" is page number Arabic numeral one. All preceding pages are numbered with lower case Roman numerals, where each page of the report has a page number, i.e. Title Page" is i, "Abstract" is ii, etc. No page numbers appear on the Title Page or on the Abstract and these sections are NOT listed in the Table of Contents. The "Table of Contents" and "List of Symbols" do have a visible page number, at the middle bottom of the page. The pages numbers for the remainder of the document are shown in the upper right hand corner.

The "List of Symbols" is the first listed item in the Table of Contents. Followed by the remaining sections. Subsections are recommended for clarity and are at the discretion of the author.

Formal Report Instructions

List of Symbols
All symbols used throughout the report are presented in this section along with their meanings and units. "English" symbols are presented first in alphabetical order. Greek symbols follow, also in Greek alphabetical order.

Introduction and Literature Review
This section introduces the reader to the problem area. An explanation of the significance of the problem should be given. The section should also inform the reader of the relevant work which preceded this report. Objectives of the work proposed to address the problem should be clearly defined. References are cited in this section. See the handout "Documentation Style."

Analytical Approach
This section presents the analytical model related to the measured phenomenon of the experiment. Governing equations are either derived or stated, making sure all symbols are defined, and appropriate citations to references are made. The choice of whether to state or derive an equation is made in accordance with the nature of the equation (Is it well known? Is it fundamental? Is it a special case of a more general equation?). In the case that a derivation is included, only the major steps need be shown for the sake of reading continuity and clarity of presentation. Step-by-step details are included in the appendix; indicating to the reader that is where the detailed derivation can be found. An outline of analysis of data that will be performed after conducting the experiment is included in this section. For example, if statistical methods such as linear regression will be used, the pertinent equations should be included here. References are cited in this section. See the handout "Documentation Style."

Experimental Program
The experiment itself is described in this section. The apparatus is listed and/or depicted with accompanying description. A figure of the set-up is included. The procedure used is explained in detail. The uncertainty of the measurements is discussed. The presence of extraneous inputs should be noted. See the handout "Apparatus and Procedures."

Results
This section presents the results of the experiment in the most understandable form, whether tabular, graphical, etc. Any computations or reduction of data made from measured values should be clearly presented, with sample calculations shown. Extensive reduction of data is included in the Appendix. If the experimental results can be compared to theoretically obtained results, this should be done in the manner which makes the best comparison.

Conclusions
This section is usually read after the abstract (if the abstract was found to be interesting) in effect making this the second most important section of the report. Declaring the comparison of the experimental and theoretical results should be made here, if applicable, in a percent difference form. Any "trends" in the data should be stated and explained in this section. Good and bad points should be noted. Suggestions for improving future versions of the experimental approach may be made as well.

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References
Complete bibliographic information is noted here for all references cited in the report. See the handout "Documentation Style."

Appendix
This section allows presentation of material which is important and relevant to the reports but which detracts from the reading continuity of the main body of the report. Raw data, calculations and reduction of data, and step-by-step detailed mathematical derivations are examples of such material.

Notes on Figures and Tables

Figures and tables are illustrative supports to the text of the report. They are to be numbered according to their occurrence in the report. This allows for ease of referral in the text.

Figures and tables are numbered independently and are included within the main body of the paper in close proximity to the text which refers to them. **Do not** insert figures and tables without explanation of their presence; the reader is not expected to "see" what the author "sees" without a written dialog where the author shares observations with the reader.

The methods of labeling figures and tables are different. A figure (a graph, picture, sketch, apparatus diagram, etc.) is labeled **below** with its title. The figure label text should be descriptive yet short enough to fit on a single line if possible. If the figure is taken from a reference and not created by the author, then at the end of the descriptive label include a citation.

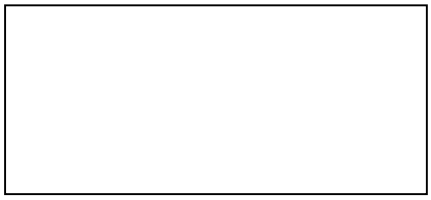

Figure x. Sample descriptive text placed here

A table is labeled and titled from **above**. The text describing the table is usually very short.

Table x. Sample table of data
